

# Successful Percutaneous Treatment of Coronary Artery Ectasia with Drug-Eluting Stent

Bhupesh Rajanikant Shah<sup>1</sup>, Ashok S. Thakkar<sup>2</sup>

<sup>1</sup>Department of Cardiology, NHL Municipal Medical College, Ahmedabad, India

<sup>2</sup>Department of Clinical Trials, Sahajanand Medical Technologies Pvt. Ltd., Surat, India

Email: [shahbhupesh@hotmail.com](mailto:shahbhupesh@hotmail.com)

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## Abstract

Coronary artery ectasia is well-known but relatively uncommon finding with prevalence ranging from 1.2% to 5.3%. Coronary artery ectasia has been associated with atherosclerosis in approximately half of the cases. Here, we are presenting a case of male patient who experienced myocardial infarction and was diagnosed with coronary artery ectasia in proximal-mid junction of left anterior descending artery with stenotic lesion. The patient was successfully treated with percutaneous transluminal coronary angioplasty.

## Keywords

Coronary Artery Ectasia, Drug Eluting Stent, Percutaneous Coronary Intervention

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## 1. Introduction

Coronary artery ectasia (CAE) is commonly defined as an inappropriate dilation of the coronary arteries exceeding the largest diameter of an adjacent normal vessel more than 1.5 fold [1]. It is well-known but relatively uncommon finding with an estimated prevalence ranging from 1.2% to 5.3% [1]-[3]. Diffuse dilation of the coronary artery is called ectasia whereas focal dilation refers to coronary aneurysm [4]. The clinical significance of CAE is not fully clarified. There is no typical symptom that could be associated with CAE [5]. As in majority of the cases (more than 50% cases), the CAE has been associated with stenotic lesions, the clinical presentation and long-term cardiac complications are mostly associated with the severity of the stenotic coronary lesions [1] [3]. Here, we are presenting a case of a male patient who experienced myocardial infarction and was diagnosed with CAE in proximal-mid junction of left anterior descending artery (LAD) with stenotic lesion. The patient was

successfully treated with percutaneous transluminal coronary angioplasty (PTCA).

## 2. Case Report

A 48-year-old male patient, known case of diabetes mellitus (type-II), presented with the chief complaints of sudden onset of severe sub-sternal chest pain with radiation to the left arm and jaw for 8 to 10 hours along with nausea, vomiting and dyspnea. The patient was thrombolysed with streptokinase in view of acute anterior wall myocardial infarction. The patient was referred to our clinic for further evaluation.

The echocardiographic evaluation demonstrated ejection fraction less than 30%. Coronary angiogram (CAG) revealed single vessel disease: 70% occlusion in proximal LAD, 90% occlusion in mid-LAD, ectasia in proximal-mid junction of LAD with normal left coronary circumflex artery (LCX), right coronary artery (RCA) and left main coronary artery (LMCA) (**Figure 1**). We decided to perform PTCA with stent implantation into LAD.

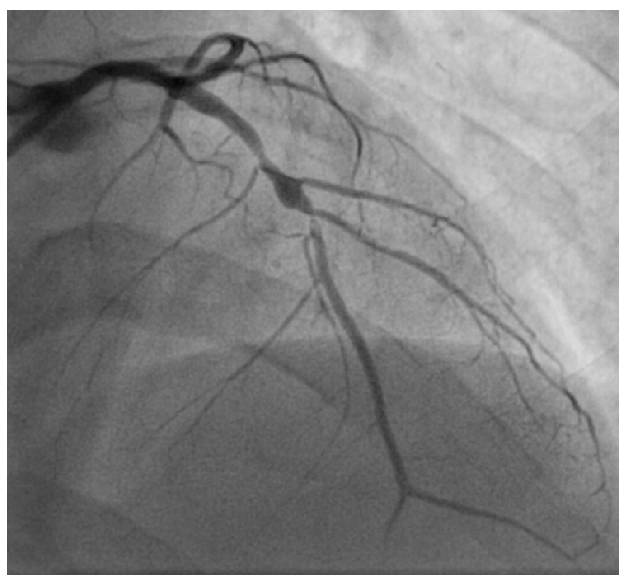
Primary PTCA of LAD was initiated using a 6F EBU guiding catheter and 0.014 BMW PTCA guidewire through right radial approach. A drug-eluting stent, 2.5 × 32 mm SUPRALIMUS-CORE (Sahajanand Medical Technologies Pvt. Ltd., Surat, India), was deployed in proximal-mid LAD. Post-dilatation was carried out using 2.75 × 10 mm Maverick balloon at 10 atmosphere pressure. Check-angiogram showed well-placed stent in proximal-mid LAD (**Figure 2**). The patient tolerated procedure well.

The patient was discharged from the hospital after two days of the procedure. He was prescribed dual anti-platelet treatment (aspirin-300 mg and clopidogrel-150 mg), statin,  $\beta$ -blocker and angiotensin converting enzyme inhibitor.

## 3. Discussion

CAE is a rare but well-reported finding during diagnostic coronary angiography. RCA is the most commonly affected artery and LMCA is the least frequently affected whereas involvement of LAD and LCX is variable [6]. CAE has been classified in several ways. The classification system suggested by Markis *et al.* [3] has been widely used which is based upon the number and diffuseness of the involved coronary vessel. The classification has been shown in **Table 1**. In our case, patient had type-4 ectasia in LAD.

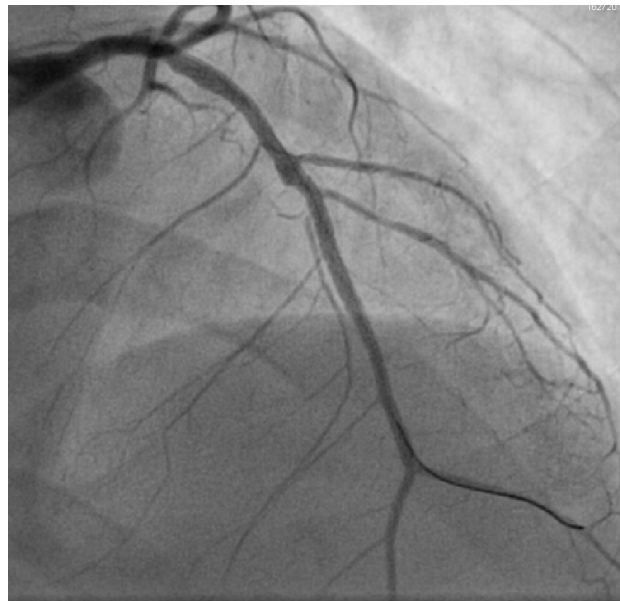
The most common etiology is atherosclerosis, responsible for more than 50% cases in adults [1] [7] [8]. Other causes include coronary artery revascularization procedures—iatrogenic complication, vasculitides (*i.e.* Takayasu arthritis, Kawasaki disease), congenital malformations, chest traumas, connective tissue disorders (*i.e.* rheumatoid arthritis, systemic lupus erythematous), collagenopathies (*i.e.* Marfan syndrome) and primary



**Figure 1.** Coronary angiogram revealed single vessel disease with 70% occlusion in proximal LAD, 90% occlusion in mid-LAD as well as ectasia in proximal-mid junction of LAD.

**Table 1.** Classification of coronary artery ectasia as per Markis classification system.

| Type of Ectasia | Definition   |
|-----------------|--|
| Type 1          | Diffuse ectasia of two or three vessels                        |
| Type 2          | Diffuse ectasia in one vessel and localized disease in another |
| Type 3          | Diffuse ectasia in one vessel only                             |
| Type 4          | Localized and segmental involvement                            |

**Figure 2.** Post-procedural coronary angiogram showed well-placed stent in proximal-mid LAD.

hyperaldosteronism [5] [6]. In our case also, patient had ectasia in proximal-mid of LAD as well as stenosis in proximal (70%) and mid (90%) of LAD.

CAE may remain asymptomatic and diagnosed incidentally but in some cases, the patient experienced myocardial infarction due to recurrent thrombus formation [9]. Similarly, Zografos *et al.*, in their retrospective study, found that myocardial infarction was more common in patients with diffuse ectasia [2]. They also explained that intracoronary thrombus formation and embolization (as a result of slow flow due to ectasia) lead to frequent myocardial infarction in patients with ectasia.

There is no consensus for the management of CAE [5]. The treatment approach ranges from medical observation to revascularization depending upon the clinical manifestation of the patient. Ozcan *et al.* has reported case-series. In the two cases of this case-series, the patient was followed medically for aneurysm in left main coronary artery as there was no stenosis or flow-limitation [10]. Similarly, Wells *et al.* has reported a case of elderly patient who was successfully treated with coronary artery bypass grafting (CABG) for calcified lesion of LAD but the aneurysm was left alone and the six-month follow-up showed no cardiovascular complication [11].

PCI of the stenosis adjacent to ectasia is challenging with regard to optimal stent sizing, misplacement, embolization of the stent, early stent thrombosis or restenosis and it requires caution for adequate stent expansion and wall apposition [4] [6] [12]. Stefanadis *et al.* has reported superior outcomes covered stents for sealing of coronary aneurysm as compared to bare metal stent [12]. Drug-eluting stent reduces the rate of re-stenosis but due to larger vessel diameter in ectatic coronary artery disease, it is generally not used in this clinical condition [6] [13]. However, Rha *et al.* has reported successful implantation of two drug-eluting stents parallel to each other in ectatic LAD artery [13]. The author also recommended the clinician should consider parallel stenting of the drug-eluting stents as a new intervention strategy.

We have reported favorable outcomes of deployment of drug eluting stent in CAE associated with arteriosclerosis. We had deployed drug-eluting stent after considering age as well as co-morbid condition (type-II diabetes mellitus) of the patient.

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